

CLAIMS

- 1 A damped aerofoil structure comprising, an aerofoil having a first wall and a second opposing wall, and vibration damping for damping relative movement of the first and second wall, wherein the damping means comprises at least two cooperating damping elements, a first damping element mounted to the first wall of the structure and a second damping element mounted to the second wall of the structure.
- 2 A damped aerofoil structure as claimed in claim 1 wherein the first wall and second wall together define an enclosed cavity, and the vibration damping means is located within the cavity, the first damping element mounted to the inner surface of the first wall of the structure and the second damping element mounted to the inner surface of the second wall of the structure.
- 3 A damped aerofoil structure as claimed in claim 1 wherein the first and second damping elements are in frictional engagement with one another.
- 4 A damped aerofoil structure as claimed in claim 1 wherein the first and second damping elements are in frictional engagement with an interposed third damping element.
- 5 A damped aerofoil structure as claimed in claim 1 wherein the damping means provides structural support to the aerofoil structure.
- 6 A damped aerofoil structure as claimed in claim 1 wherein the damping means forms reinforcing ribs that cooperate with the first and second wall of the aerofoil to form a girder structure.
- 7 A damped aerofoil structure as claimed in claim 5 wherein the girder structure comprises a Warren girder.

- 8 A damped aerofoil structure as claimed in claim 1 or claim 2 wherein the first and second damping elements are in nestled arrangement.
- 9 A damped aerofoil structure as claimed in claim 3 wherein the first, second and third damping element are in nestled arrangement.
- 10 A damped aerofoil structure as claimed in claim 1 or claim 2 wherein the first and second damping elements comprise corrugated sheets.
- 11 A damped aerofoil structure as claimed in claim 3 wherein the first, second and third damping elements comprise corrugated sheets.
- 12 A damped aerofoil structure as claimed in claim 1, claim 2 or claim 3 wherein the first and second damping elements are bonded to one another about their periphery.
- 13 A damped aerofoil structure as claimed in claim 12 wherein the first and second damping elements are diffusion bonded to one another about their periphery.
- 14 A damped aerofoil structure as claimed in claim 1 wherein the first and second damping elements are manufactured by a superplastic forming process.
- 15 A damped aerofoil structure as claimed in claim 4 wherein the third damping element is manufactured by a superplastic forming process.
- 16 A damped aerofoil structure as claimed in claim 1 wherein the first and second damping elements are manufactured from a titanium alloy.
- 17 A damped aerofoil structure as claimed in claim 4 wherein the third damping element is manufactured from a titanium alloy.

- 18 A damped aerofoil structure as claimed in claim 1 wherein at least one of the first and second damping elements is coated with a hard coating.
- 19 A damped aerofoil structure as claimed in claim 18 wherein the hard coating is a ceramic material.
- 20 A damped aerofoil structure as claimed in claim 18 wherein the hard coating is applied to both first and second damping elements.
- 21 A damped aerofoil structure as claimed in any preceding claim for use in a fan of a turbofan engine.
- 22 A damped aerofoil structure as hereinbefore described with reference to the accompanying figures 3,4,5 and 6.
- 23 A damped aerofoil structure manufactured by a superplastic forming process whereby the first and second damping elements are formed from a first and second sheet, said first and second sheets being joined about their periphery but otherwise substantially separated from one another.
- 24 A damped aerofoil structure manufactured by a superplastic forming process substantially as hereinbefore described with reference to accompanying figures 7,8 and 9.